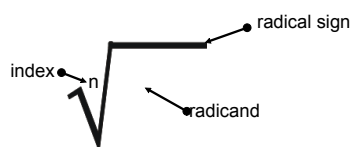


5.5 Roots of Real Numbers



Simplify

$$\sqrt{36} = 6 \quad \text{principal root (+)}$$

Solve

$$\sqrt{x^2} = \sqrt{36}$$

$$x = \pm 6$$

$$\sqrt{75} \quad \sqrt{24} \quad \sqrt{32}$$

$$\begin{array}{c} 25 \overline{) 75} \\ \underline{55} \\ 20 \\ \underline{15} \\ 5 \end{array} \quad \begin{array}{c} 4 \overline{) 24} \\ \underline{22} \\ 20 \\ \underline{16} \\ 4 \end{array} \quad \begin{array}{c} 16 \overline{) 32} \\ \underline{32} \\ 0 \end{array}$$

$$5\sqrt{3} \quad 2\sqrt{6} \quad \sqrt{32}$$

$$\sqrt[3]{27} = 3$$

$$\begin{array}{c} 9 \overline{) 27} \\ \underline{27} \\ 0 \end{array}$$

$$\sqrt{16x^3}$$

Handwritten work: $4x\sqrt{x}$ and a diagram showing $x \cdot x \cdot x$ with a blue circle around the first two x 's and a blue arrow pointing from the third x to the exponent 3.

$$-\sqrt{9x^6}$$

Handwritten work: $-3x^3$ and a diagram showing $x \cdot x \cdot x \cdot x \cdot x \cdot x$ with three blue circles around the first two, next two, and last two x 's, and three x 's written below.

$$\pm \sqrt{(q^3 + 5)^4}$$

Handwritten work: $\pm (q^3 + 5)^2$

$$\sqrt[4]{x^8 y^{12} z^4}$$

Handwritten work: $= x^2 y^3 z$

$$\sqrt[3]{-27p^6}$$

$$-3p^2$$

$$\begin{array}{c} 243 \\ \wedge \\ 3 \quad 81 \\ \wedge \quad \wedge \\ 3 \quad 9 \quad 9 \\ \wedge \quad \wedge \quad \wedge \\ 3 \quad 3 \quad 3 \end{array}$$

$$\sqrt[5]{243a^{10}b^3}$$

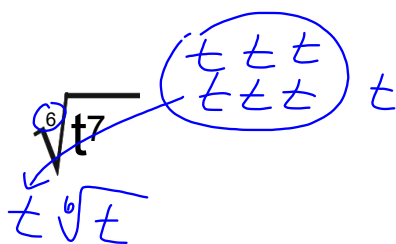
$$3a^2\sqrt[5]{b^3}$$

$$\sqrt{-4}$$

$$\text{not real}$$

$$\sqrt[3]{-8}$$

$$-2$$



HW
p248
31, 43, 49, 30-54 x3 (Multiples of 3)

Due
Friday